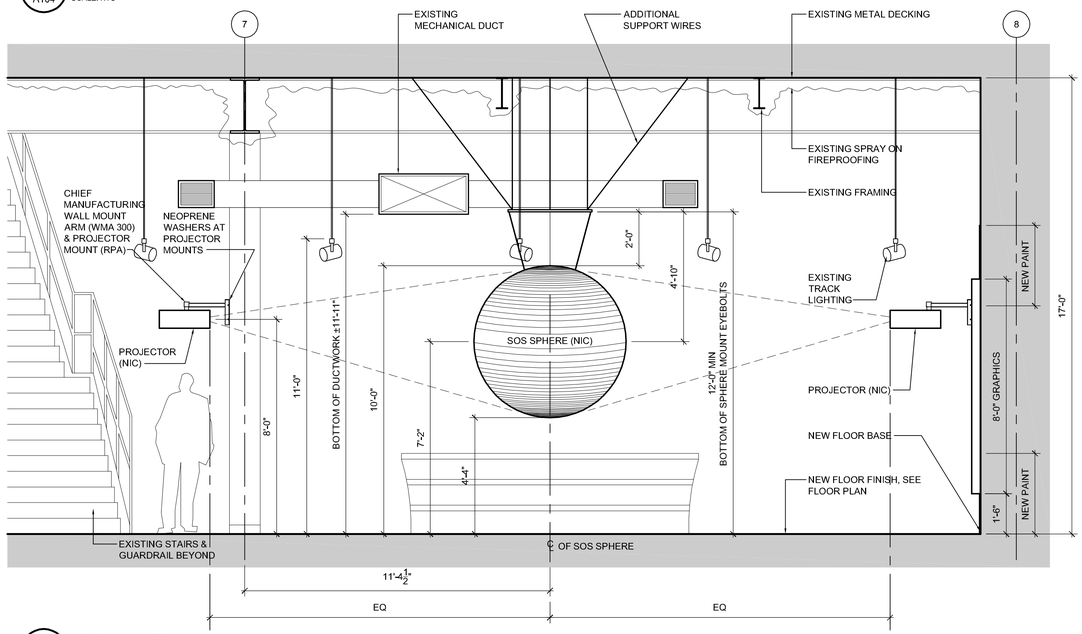
1 A104 BASIS OF DESIGN PHOTO
SCALE: NTS



2 A104 SECTION / INTERIOR ELEVATION
SCALE: 3/8"=1'-0"

The following dimensions are based on creating the proper sphere-wire suspension angle from a 20-foot (6.1m) high reinforced concrete ceiling.

The sphere is suspended from three eyebolts mounted directly in the ceiling. Three suspension wires allow the sphere to find its own stable plane. As mentioned, the angle of the suspension wires must be perfect. If the angle of the suspension lines from the sphere to the ceiling is too acute, the sphere can be susceptible to vertical instability (bouncing). Too steep an angle can make the sphere susceptible to pendulum instability (swaying).

To determine the eyebolt positions, first locate the exact desired position of the center of the sphere and mark it on the floor. The eyebolts should be mounted at three equally-spaced points, each 56" (1.42m) out from the sphere center point, as shown in below.

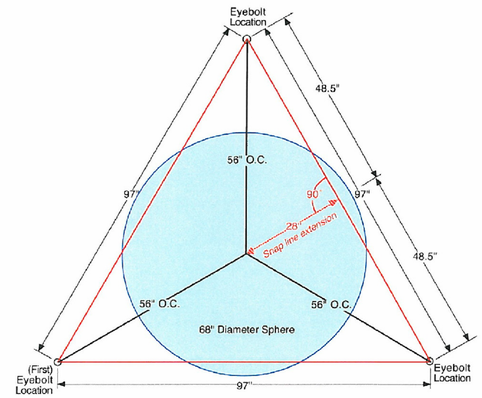
One way to establish these three equidistant points is to pick the first point 56" (1.42m) from the center point, and mark it on the floor. This corresponds to the lower-left eyebolt location in below. Then draw, or snap, a line on the floor through both the center of the sphere and this first eyebolt location, extending the line well beyond the sphere center on the other side. At a point 28" (.71m) further out from the center, establish a right angle from this line and snap a second line on the floor perpendicular from the first, as shown. Measure 48 1/2" (1.23m) out from the intersection of the first line in each direction along the second line to position the second and third eyebolt locations.

To verify the position of these last two eyebolts, measure their distances from the first eyebolt. This distance should be 97" (2.46m). An error of an inch (2.5cm) or so is probably allowable here.

After marking the eyebolt positions on the floor, use either a laser level or plumb bob to find their actual locations on the ceiling. The eyebolts are installed according to generally accepted procedure. It is a good idea from a safety standpoint to use eyebolts considerably stronger than those needed to support a static 50-pound (22.7kg) load to account for lateral or vertical stress on the sphere due to impact or other physical contact, or in the case of a prone area, earthquakes.

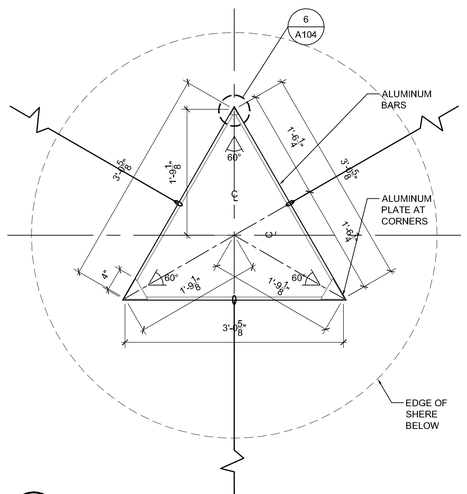
3 A104 DETAILED SPHERE MOUNTING INSTRUCTIONS
SCALE: NTS

SEE http://sos.noaa.gov/docs/sphere_mounting.html FOR ADDITIONAL INFORMATION

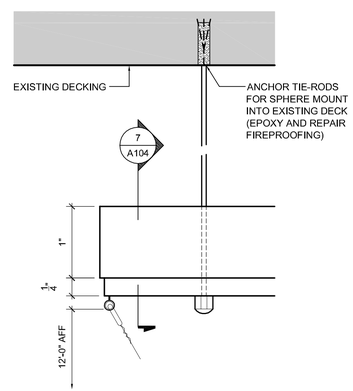


Suspension geometry for a 68" sphere from a 20' ceiling height.

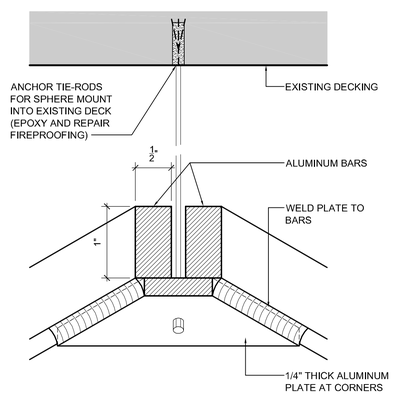
4 A104 DETAILED SPHERE MOUNTING GEOMETRY
SCALE: NTS



5 A104 SPHERE SUPPORT SYSTEM DETAIL
SCALE: 1"=1'-0"



6 A104 SPHERE SUPPORT SYSTEM DETAIL
SCALE: 1'-0"=1'-0"



7 A104 SPHERE SUPPORT SYSTEM DETAIL
SCALE: 1'-0"=1'-0"

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project name / owner

Whitaker CENTER For Science and the Arts

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revisions

no.	date	description

key plan

project north

date	project mgr.
10-31-08	CDD

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2008.0289.00

drawing set
CONSTRUCTION DOCUMENTS

drawing title
SPHERE SUPPORT DETAILS

sheet no.
A104